



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,663	07/17/2003	Uwe Knappe	2000.108000	2071
23720	7590	04/01/2005	EXAMINER	
WILLIAMS, MORGAN & AMERSON, P.C. 10333 RICHMOND, SUITE 1100 HOUSTON, TX 77042			DANG, PHUC T	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/621,663	KNAPPE ET AL.
	Examiner	Art Unit
	PHUC T. DANG	2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 17 July 2003.  
 2a) This action is **FINAL**.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-27 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-8, 12-14, 16-20 and 24-26 is/are rejected.  
 7) Claim(s) 9-11, 15, 21-23 and 27 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 17 July 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 081304.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

Art Unit: 2818

**DETAILED ACTION**

**Oath/Declaration**

1. The oath/declaration filed on July 17, 2003 is acceptable.

**Priority**

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

**Information Disclosure Statement**

3. The office acknowledges receipt of the following items from the applicant:

Information Disclosure Statement (IDS) filed on August 13, 2004.

**Specification**

4. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

**Claim Rejections - 35 USC § 102**

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was

Art Unit: 2818

made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 26 is rejected under 35 U.S.C. 102 (e) as being anticipated by Nishi (U.S. Patent No. 6,813,000 B1).

Nishi discloses an automatic alignment system, comprising:

a substrate stage (9, Fig. 1) configured to receive and hold in place a substrate (W, Fig. 1);  
a drive assembly (10, Fig. 1) mechanically coupled to the substrate stage and configured to initiate a motion of the substrate stage (9, Fig. 1) in response to a control signal; (45, Fig. 1) and

a control unit (43, Fig. 1) configured to provide the control signal (45, Fig. 1) to the drive assembly (10, Fig. 1), and further configured to establish said control signal (45, Fig. 1) on the basis of a predefined characteristic of a substrate (W, Fig. 1) to be aligned and position data obtained from one or more substrates previously aligned by the alignment tool (44A, 44B, Fig. 1) [col. 8, lines 1-col. 9, lines 14].

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2818

6. Claims 1-8, 12-14, 16-20 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi (U.S. Patent No. 6,813,000 B1).

Regarding claim 1, Nishi discloses a method of aligning a substrate, the method comprising: obtaining first position data position of a first substrate having predefined characteristic after an alignment of the first substrate; determining a setpoint for aligning a second substrate on the basis of the first position data and the predefined characteristic [col. 45, lines 27-col. 46, lines 5].

Nishi discloses all the features of the claimed invention as discussed above, but does not disclose aligning the second substrate on the basis of the determined setpoint.

Aligning the second substrate on the basis of the determined setpoint is achieved by gathering the position data of the predefined characteristic related to the first substrate and redefine the setpoint for alignment more precisely. However, this feature is similar to the teaching of Nishi as taught in col. 46, lines 1-5 as focusing the position data on the basis of a result of measurement performed by the second focus position data.

Thus, it would have been obvious to one having ordinary skilled in the art at the time the invention was made to modify the above teaching of Nishi for a purpose of improving a process of aligning the substrate.

Regarding claim 2, Nishi discloses a step of obtaining an input value of a first variable indicating a motion of the first substrate during the alignment act of the first substrate [col. 40, lines 59-63].

Art Unit: 2818

Regarding claim 3, Nishi discloses a step of determining the setpoint of the second substrate includes determining a second variable indicating a motion of the second substrate during an initial phase of aligning the second substrate [col. 40, lines 64-67].

Regarding claim 4, Nishi discloses a step of indicating a motion during the aligning of the second substrate [col. 40, lines 64-67].

Regarding claims 5 and 16, Nishi discloses the first variable indicates at least a two-dimensional translatory motion [col. 33, lines 57-60].

Regarding claims 6 and 17, Nishi discloses the first variable indicates at least one rotary Motion [col. 33, lines 43-47].

Regarding claim 7, Nishi discloses a step of providing a target value for the setpoint, wherein the target value is selected on the basis of the predefined characteristic [col. 22, lines 45-48].

Regarding claim 8, Nishi discloses the setpoint is determined on the basis of the target value [col. 22, lines 49-57].

Regarding claim 12, Nishi discloses the position data is determined from a plurality of first substrates [col. 28, lines 61-col. 29, lines 2].

Regarding claim 13, Nishi discloses a plurality of second substrates are aligned on the basis of the setpoint [col. 28, lines 61-col. 29, lines 2].

Regarding claim 14, claim 14 is rejected under the same rationale sets forth above to claim except obtaining the first position data includes obtaining an input value of a first variable

Art Unit: 2818

indicating a motion of the first substrate during the alignment act of the first substrate is also taught by Nishi [col. 45, lines 27-col. 46, lines 34].

Regarding claim 18, Nishi discloses the setpoint is determined on the basis of a predefined characteristic of the first and second substrates [col. 5, lines 66-col. 6, lines 10].

Regarding claim 19, Nishi discloses comprising providing a target value for the setpoint, wherein the target value is selected on the basis of the predefined characteristic [col. 8, lines 57-61].

Regarding claim 20, Nishi discloses the setpoint is determined on the basis of the target value [col. 8, lines 61+].

Regarding claim 24, Nishi discloses the input value is determined from a plurality the first substrates [col. 28, lines 64+].

Regarding claim 25, Nishi discloses a plurality of second substrates are aligned on the basis of the setpoint [col. 46, lines 1-5].

#### **Allowable Subject Matter**

7. The following is a statement of reason for the indication of allowable subject matter:

Claims 9-11, 15, 21-23 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the Prior Art made of record discloses a step of further comprising using a linear model relating the first position data and the setpoint to second position data of the second substrate and a previous setpoint used for aligning the first substrate as cited in claims 9 and 21

Art Unit: 2818

and further comprising defining the characteristic at least on the basis of a first layer, formed on the first and second substrates and including an alignment mark, and a second layer to be formed on the second substrate as cited in claim 11 and a step of defining the characteristic at least on the basis of a first layer formed on the first and second substrates and including an alignment mark, and a second layer to be formed on the second substrate as cited in claim 23 and a photolithography tool including an automatic alignment tool as defined in claim 26 as cited in claim 27.

Claims 10 and 22 are depend on objected claims 9 and 21, then they also would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### **Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuc T. Dang whose telephone number is (571) 272-1776. The examiner can normally be reached on 8:00 am-5:00 pm.
9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and After Final communications.
10. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Art Unit: 2818

Phuc T. Dang

PD 

Primary Examiner

Art Unit 2818